

**Stockton Deep Water Ship Channel (DWSC)  
Demonstration Dissolved Oxygen Aeration Facility  
September 2010 Monthly Report**

This report includes monthly plots for the Stockton Deep Water Ship Channel (DWSC) Demonstration Dissolved Oxygen (DO) Aeration Facility remote monitoring stations (Navigation Aid (NA) 40, 42, 43 and 48), handheld instrument data, California Data Exchange Center (CDEC) Rough and Ready Island (RRI) station data, and CDEC San Joaquin River at Garwood Bridge (SJG) station data for the month of September 2010. All reported data is provisional and subject to change.

**Summary:**

The Aeration Facility was operated from September 7<sup>th</sup> through September 14<sup>th</sup> for operational testing. The testing involved running one of the two pumps and discharging dissolved oxygen (DO) in the mid-30 mg/L range into the DWSC to monitor system efficiency and effectiveness.

The average monthly DO levels at all monitoring stations for September were above the California Regional Water Quality Control Board (RWQCB) San Joaquin River Basin Plan minimum water quality objective for DO of 6.0 mg/L from September 1<sup>st</sup> through November 30<sup>th</sup>. Monthly average DO concentrations for September ranged from 6.45 mg/L at RRI to 6.83 mg/L at NA48.

It should be noted that data for NA40 and NA43 from September 1<sup>st</sup> through September 3<sup>rd</sup> is missing due to a Coast Guard contractor relocating navigation aids 40 & 43 and removing the DWR equipment. The equipment was returned by the contractor and reinstalled by DWR on September 3<sup>rd</sup>.

Minimum 15-minute DO concentrations recorded for all monitoring stations were below the 6.0 mg/L minimum water quality objective (see Table 1). The monthly average remote monitoring station DO concentrations were within 0.09 to 0.38 mg/L of the RRI station data. There is no substantial difference between the DO measurements recorded with the handheld instrument and the remote stations. The monthly average handheld measured DO (at 12 foot depth) and the remote monitoring stations DO values were within -0.25 to 0.18 mg/L of each other.

The average monthly water temperature decreased 3.8° Fahrenheit (°F) from 77.8°F last month in August to 74.0°F in September.

The September monthly average SJG flow was 500 cubic feet per second (cfs). The monthly average flow increased 475 cfs from the August monthly average flow of 25 cfs.

Figures 1, 2, 3, and 4, and Tables 1 and 2 below present a summary of monthly data, and illustrates the discussion topics above.

Figure 1

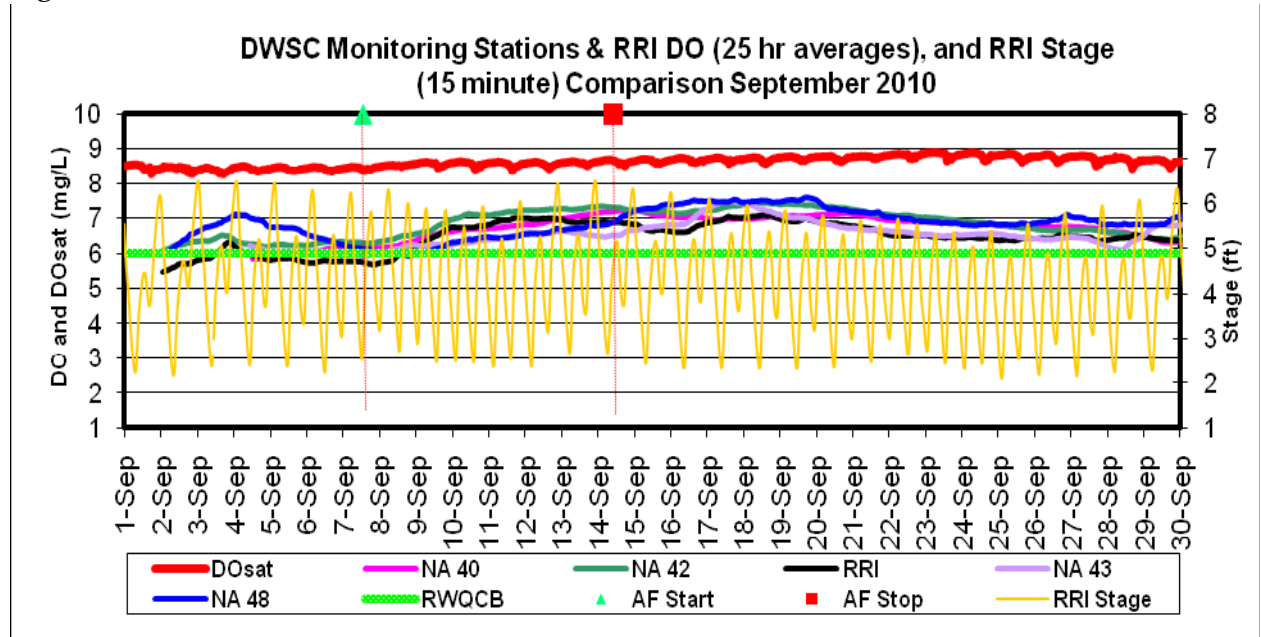


Figure 2

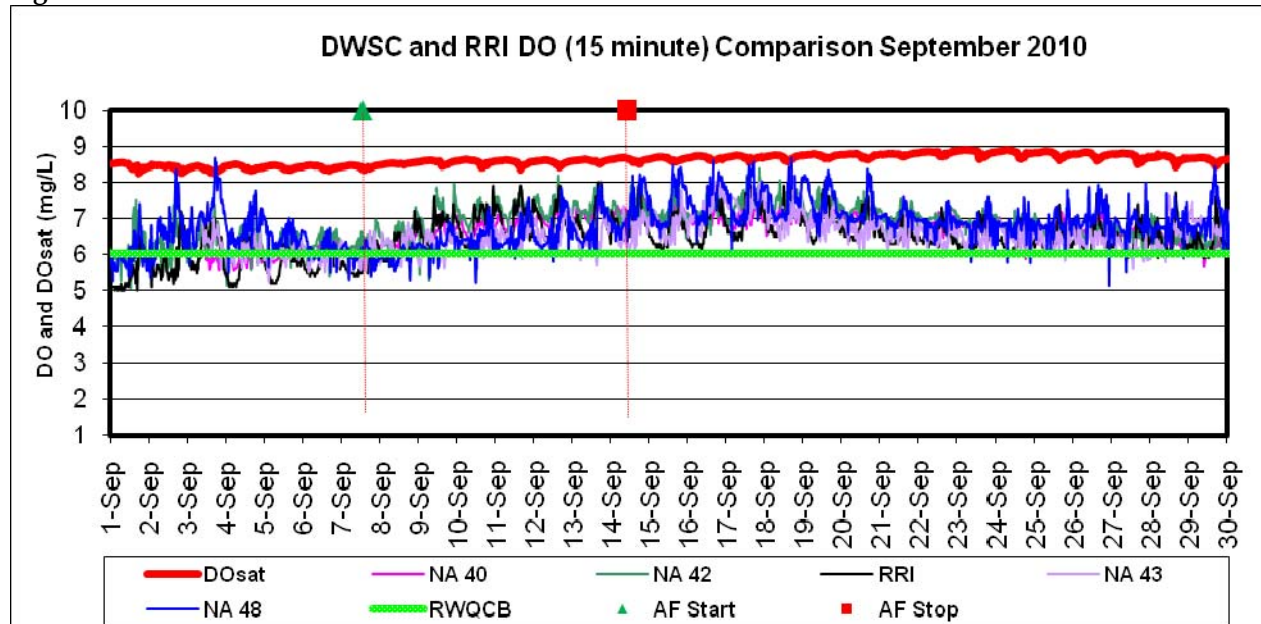


Figure 3

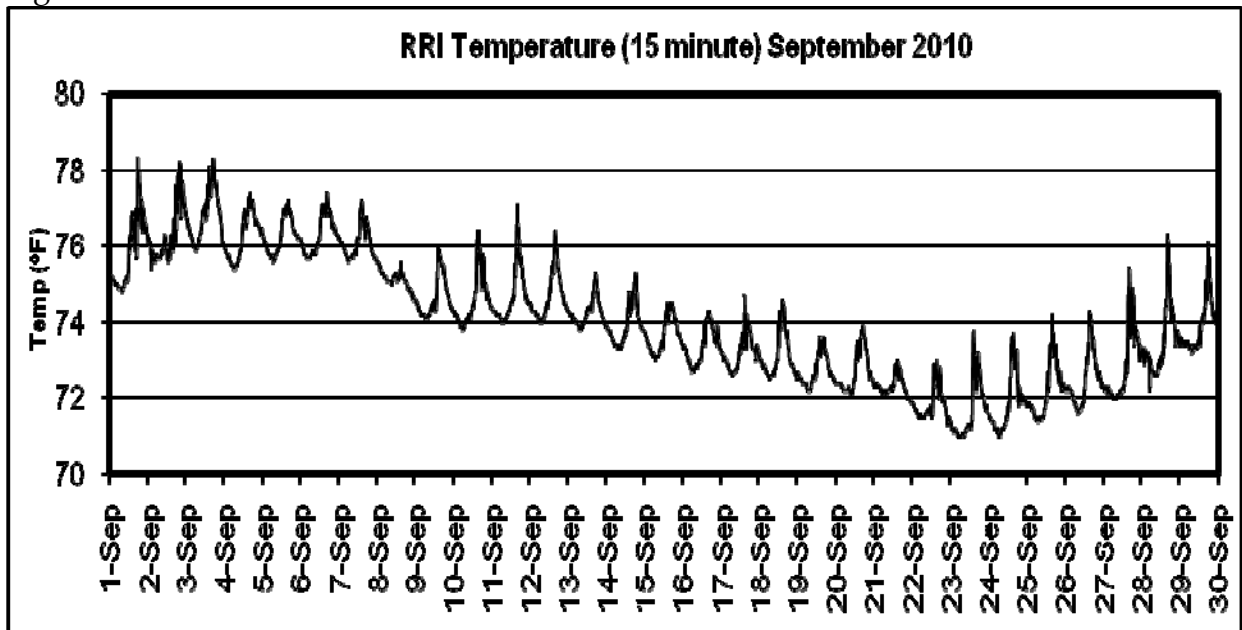


Figure 4

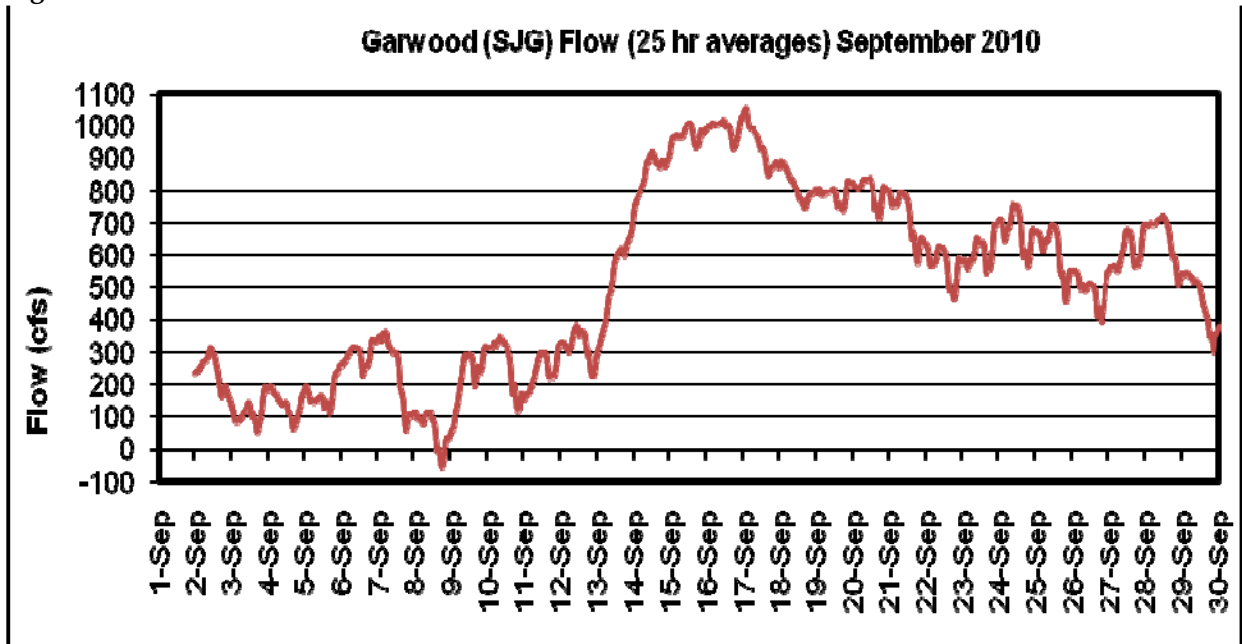


Table 1

YSI Remote Stations and RRI DO <sup>1</sup> (mg/L) & Temp <sup>1</sup> (°F)						
Sep-2010						
	RRI <sup>2</sup> DO (mg/L)	NA40 DO (mg/L)	NA42 DO (mg/L)	NA43 DO (mg/L)	NA48 DO (mg/L)	RRI Temp (°F)
Monthly DO & Temp Averages	6.45	6.71	6.81	6.54	6.83	74.0
NA Stations and RRI Monthly Average Difference		0.26	0.36	0.09	0.38	
Monthly Min DO	5.00	5.49	5.05	5.27	5.15	
Monthly Max DO	8.00	7.82	8.38	8.20	8.68	
Monthly DO STDEV	0.58	0.41	0.49	0.45	0.59	
Monthly DO Median	6.40	6.79	6.84	6.53	6.83	

<sup>1</sup>Z-Score outlier test was applied to remove anomalous recorded values.

<sup>2</sup>RRI DO data is from 3 foot depth. NA DO data is from 12 foot depth except NA48. NA48 DO data is from 9 foot depth starting September 24<sup>th</sup>, 2010.

Table 2

Handheld DO Measurements @ 12 ft Depth and YSI DO Measurements Comparison					
Sep-2010					
		NA40 DO (mg/L)	NA42 DO (mg/L)	NA43 DO (mg/L)	NA48 DO (mg/L)
Handheld Monthly <sup>3</sup> Averages		6.62	6.99	6.79	6.65
NA Stations and Handheld Monthly Average Difference		0.08	-0.18	-0.25	0.18

<sup>3</sup>Handheld monthly averages are based on the average weekly readings for the month

## **Additional Aeration Facility Associated Information:**

### **DWSC Aeration Facility Operation**

The Aeration Facility was operated from September 7<sup>th</sup> through September 14<sup>th</sup> for operational testing to monitor system efficiency and effectiveness.

### **DWSC Water Quality Stations Maintenance/Calibration**

The North Central Region (NCR) Water Quality Evaluation Section serviced the four remote monitoring stations (NA40, 42, 43, and 48) in the DWSC on September 9<sup>th</sup>, 16<sup>th</sup>, and 28<sup>th</sup> and replaced the sondes at NA 40 and NA 43 on September 3<sup>rd</sup>.

### **Head of Old River Barrier Status**

None

### **Port of Stockton Dredging Activity**

None

### **San Joaquin River Flow Changes**

San Joaquin River 25 hr average flow at Garwood was increased to approximately 1000 cfs starting on September 12<sup>th</sup>. Flow increase is mainly due to increased releases into the Merced River.

### **Port of Stockton Dock 19/20 Ship Activity**

None

Please provide your feedback concerning our observations as well as your independent observations.